REMARKS/ARGUMENTS

Favorable reconsideration of this application, in view of the present Amendments and in light of the following discussion, is respectfully requested.

Claims 1-11 and 30-31 are pending in the present application. Claims 1, 5, and 31 are amended. Support for the amendment to Claim 1 can be found in Figure 2, for example. Support for the amendment to Claim 5 is self-evident. Support for the amendment to Claim 31 can be found in the specification at least at page 18, lines 14-16, for example. Thus, no new matter is added.

The outstanding Office Action objected to Claims 5-6 for informalities; rejected Claim 30 under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement; rejected Claims 1-5 under 35 U.S.C. § 102(b) as anticipated by the eighth embodiment of Kawamura et al. (U.S. Patent Publication No. 2004/0025784, hereinafter "Kawamura '784"); rejected Claims 1 and 7-11 under 35 U.S.C. § 102(b) as anticipated by the sixth embodiment of Kawamura '784; rejected Claims 1-2 and 30 under 35 U.S.C. § 103(a) as anticipated by Yagi et al. (WO 2004/069738, hereinafter "Yagi"); rejected Claim 31 under 35 U.S.C. § 102(a) as anticipated by Bowe et al. (U.S. Patent Publication No. 2003/0105172, hereinafter "Bowe"); and rejected Claims 5-6 under 35 U.S.C. § 103(a) as unpatentable over either of the sixth or eighth embodiment of Kawamura '784 in view of Kawamura et al. (U.S. Patent Publication No. 2004/0148859, hereinafter "Kawamura '859").

In response to the objection to Claims 5-6 for informalities, Claim 5 is amended to clarify that at least one of the first or second substrates of the joined body is provided with a heater. Accordingly, Applicants respectfully request the objection to Claims 5-6 be withdrawn.

In response to the rejection of Claim 30 under 35 U.S.C. § 112, first paragraph, Applicants respectfully note that the specification at page 25, lines 10-20 states:

> Fig. 13 is an enlarged longitudinal sectional view of the microreactor shown in Fig. 12, taken along line C-C. In Figs. 12 and 13, the microreactor 61 of the present invention has a joined body 62 comprising a substrate 64 formed with a microchannel portion 65 on one surface 64a thereof, and a substrate (cover member) 66 joined to the surface 64a of the substrate 64 so as to cover the microchannel portion 65. Inside the joined body 62, there is formed a flow path 68 composed of the microchannel portion 65 and the substrate 66, and a catalyst carrying member 75 is disposed inside the flow path 68.

Thus, the specification provides ample support for a microreactor with only one substrate that has a channel formed on it, a catalyst carrying member that is wire shaped, and a metal base body of the catalyst carrying member that is circular in section. Indeed, one non-limiting embodiment that includes all of the above-noted features is shown in Figure 13. Accordingly, Applicants respectfully request the rejection of Claim 30 under 35 U.S.C. § 112, first paragraph, be withdrawn.

Applicants respectfully traverse the rejection of Claims 1-5 under 35 U.S.C. § 102(b) as anticipated by the eighth embodiment of Kawamura '784.

Amended independent Claim 1 recites that the wall surfaces of the microchannel portion that define the flow path are free of any film.

Turning now to the cited art, the outstanding Office Action asserts that the eighth embodiment of Kawamura '784 describes a flow path (20) formed by a microchannel groove (39) formed on the surface of the second substrate (14).[1] However, the eighth embodiment of Kawamura '784 fails to describe that the wall surfaces of the microchannel portion that define the flow path are free of any film. Instead, as shown in Fig. 16, a thin film heater (17) is provided on the surface of the groove (39) which is on a side of the second substrate (14),

[1] See outstanding Office Action at page 4.

and the first reaction catalyst layer (48) is provided on the thin film heater (17).[2] In other words, the eighth embodiment of Kawamura '784 fails to disclose or suggest wall surfaces of a microchannel portion that define a flow path that are free of any film.

Accordingly, Applicants respectfully submit that amended independent Claim 1, and claims depending therefrom, patentably define over the eighth embodiment of Kawamura '784. Therefore, Applicants respectfully request the rejection of Claims 1-5 under 35 U.S.C. § 102(b) be withdrawn.

In addition, Applicants respectfully traverse the rejection of Claims 1 and 7-11 under 35 U.S.C. § 102(b) as anticipated by the sixth embodiment of Kawamura '784.

As discussed above, amended independent Claim 1 recites that the wall surfaces of the microchannel portion that define the flow path are free of any film.

Turning now to the cited art, the outstanding Office Action asserts that the sixth embodiment of Kawamura '784 describes a flow path (20) formed by a microchannel groove (39) formed on the surface of the second substrate.[3] However, the sixth embodiment of Kawamura '784 fails to describes that the wall surfaces of the microchannel portion that define the flow path are free of any film. Instead, as shown in Fig. 14, a thin film heater (17) is provided on the surface of the groove (39) of the second substrate (14) and a reaction catalyst layer (13) is formed on the surface of the groove (12) of the first substrate.[4] In other words, the sixth embodiment of Kawamura '784 fails to disclose or suggest that the wall surfaces of the microchannel portion that define the flow path are free of any film.

Accordingly, Applicants respectfully submit that amended independent Claim 1, and claims depending therefrom, patentably define over the sixth embodiment of Kawamura

[2] See Kawamura '784 at paragraph [0105].
[3] See outstanding Office Action at page 5.
[4] See Kawamura '784 at paragraph [0102].

'784. Therefore, Applicants respectfully request the rejection of Claims 1 and 7-11 under 35 U.S.C. § 102(b) be withdrawn.

In addition, Applicants respectfully traverse the rejection of Claims 1-2 and 30 under 35 U.S.C. § 102(a) as anticipated by Yagi.

As discussed above, amended independent Claim 1 recites that the wall surfaces of the microchannel portion that define the flow path are free of any film.

Turning now to the cited art, the outstanding Office Action asserts that Yagi describes a microchannel portion (145) formed on the second substrate (144) which forms a flow path (146).[5] However, Yagi fails to describe that the wall surfaces of the microchannel portion that define the flow path are free of any film. Instead, as shown in Figure 14, Yagi describes that the flow path (146) is composed of confronting microchannel portions (143, 145) and a catalyst (C) that is supported on the whole inner wall surface of the flow path via a metal oxide film (147).[6] In other words, Yagi fails to disclose or suggest wall surfaces of a microchannel portion that define the flow path that are free of any film.

Accordingly, Applicants respectfully submit that amended independent Claim 1, and claims depending therefrom, patentably define over Yagi. Therefore, Applicants respectfully request the rejection of Claims 1-2 and 30 under 35 U.S.C. § 102(a) be withdrawn.

In addition, Applicants respectfully traverse the rejection of Claim 31 under 35 U.S.C. § 102(a) as anticipated by Bowe.

Amended independent Claim 41 recites that both end openings of the flow path are exposed at a first end surface of the joined body.

[5] See outstanding Office Action at page 6.
[6] See Yagi at paragraph [0141].

Turning now to the cited art, the outstanding Office Action asserts that the grooves (44) machined in the plates (42) of the reactor in Bowe form a flow path.[7] However, Bowe fails to describe that both end openings of the flow path are exposed at a first end surface of the joined body. Instead, Bowe describes that the gas flow channels are defined by the grooves (44), that one set of channels extends from left to right in the stack and that the other set of channels extends from front to back of the stack.[8] In other words, Bowe fails to disclose or suggest that both end openings of the flow path are exposed at a first end surface of the joined body.

Accordingly, Applicants respectfully submit that independent Claim 31 defines over Bowe. Therefore, Applicants respectfully request the rejection of Claim 31 under 35 U.S.C. § 102(a) be withdrawn.

In addition, Applicants respectfully traverse the rejection of Claims 5-6 under 35 U.S.C. § 103(a) as unpatentable over the sixth or eighth embodiment of Kawamura '784 in view of Kawamura '859.

As discussed above, amended independent Claim 1 patentably defines over the sixth and eighth embodiments of Kawamura '784.

Kawamura '859 fails to remedy the deficiencies discussed above regarding Kawamura '784 in relation to amended independent Claim 1. Instead, Kawamura '859 is silent regarding wall surfaces of a microchannel portion that define a flow path that are free of any film.

Accordingly, no reasonable combination of Kawamura '784 and Kawamura '859 would include all of the features recited in amended independent Claim 1, or Claims 5-6

[7] See outstanding Office Action at page 6.
[8] See Bowe at paragraph [0040].

depending therefrom. Therefore, Applicants respectfully request the rejection of Claims 5-6 under 35 U.S.C. § 103(a) be withdrawn.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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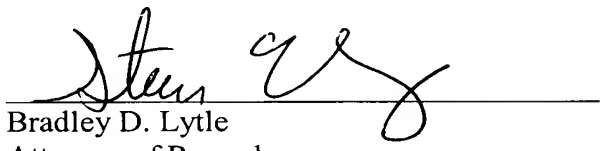

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